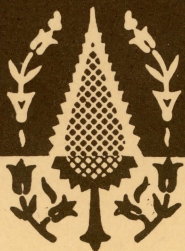


# MUSEUM TALK



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SANTA BARBARA MUSEUM  
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## **SANTA ROSA ISLAND DWARF MAMMOTHS**

Many thousands of years ago glaciers covered the northern portions of North America, and the ice, stored on land, depleted the sea levels, so that more land was exposed than at present, and the site of Santa Barbara was located in the "foothills," while the beach of those days was several miles out in what is now our Channel.

Our present Channel Islands formed a long seaward extension of the Santa Monica Mountains, and the mouth of the Santa Clara River may have extended down a fertile valley as far as opposite Carpinteria. In the "foothills" of the present site of Carpinteria Beach, and at comparable elevations on Santa Cruz, Santa Rosa, and probably San Miguel Islands, forests of evergreens, including Douglas Fir and Santa Cruz Island Pine, flourished under a climate very similar to that found at Monterey or Fort Bragg today. Through this wet, humid forest roamed strange beasts—the ground sloth, giant bison, sabre-toothed tiger and giant mammoth, whose bones have been found in mainland geological deposits. On the Islands, which became separated from the mainland early in the Ice Age, only the fossil bones of a species of dwarf mammoth and a giant mouse have been found.

It might be well to explain that, contrary to popular belief, the word "mammoth" does not necessarily mean "large." It originates from a Siberian word "mammut,"

meaning "ground dweller," given to the prehistoric elephants whose bones were found underground and were regarded by the natives as bones from gigantic moles who burrowed in the earth and died upon reaching the surface.

"Mammoth" was adopted as the name of the prehistoric elephants and because the bones were so much larger than most Americans were used to seeing, even small mammoths were regarded as being gigantic. A Hottentot or an African Bushman would certainly feel the eight foot northern or hairy mammoth was a "little fellow" in comparison to the largest of living African elephants, whose record size is about eleven feet.

While the living African elephant may reach eleven feet in height, there is also a living African pygmy elephant, no larger than the Santa Rosa Island dwarfs. Other fossil dwarf elephants are known from the island of Malta in the Mediterranean and Ceylon, and on San Miguel Island in the Santa Barbara Channel, but, so far as is known, the composite skeleton of the dwarf mammoth from Santa Rosa Island is the only mounted skeleton on exhibit in the world.

Few visitors to the Museum appreciate the time, work and money that must be expended to restore the skeleton of even a "little" dwarf. The writer and his assistants have been engaged for thirteen years in collecting, preparing, sorting and finally mounting the bones of our "middle-sized" dwarf skeleton, which is now on display in the Hall of Geology.

Tens of thousands of years ago, during the Ice Age, the dwarf mammoths roamed the present Santa Rosa Island and, from our examination of the geological strata, it is apparent that hundreds of the dwarf mammoths died over a period of perhaps 60,000 years and that their bones have

become separated. Some were buried in the clays of stream washes and thus preserved until our expeditions have found them weathering out of the sea cliffs and canyon walls.

Sometimes only half a bone is found, sometimes not even that much. Occasionally we find several well preserved bones in one place, but we may have to remove thirty or forty feet of overburden with dynamite and shovels to get at them.

The bones are then uncovered very carefully, using special digging tools. The dirt is brushed away with whisk-brooms and soft paint brushes and the bone dried and then hardened with shellac. Only a small amount of bone is exposed and hardened at a time, before the next piece is uncovered, because bones of such great age have lost all of the animal glue which makes your pork chop or T-bone hard. The bone is then covered with squares of burlap dipped in plaster of paris for further reinforcement and brought to the Museum.

In the Museum laboratory the outside wrapping of plaster of paris is removed, exposing the bone, and the long process of cleaning off all excess dirt or rock and hardening the bone with more shellac is completed. There are many broken pieces which have to be cemented together with special cement. In order to mount the skeleton all bones have to be hollowed out and iron reinforcement and plaster of paris run through the center. Missing bones must be modeled and cast and the whole skeleton assembled.

Because our dwarf mammoth is composed of bones from many individuals, one of the major problems is the selection of the right size bones to be assembled, so that one leg is not shorter than the other, or that the ribs, each different, are of the proper length. It is not always possible to



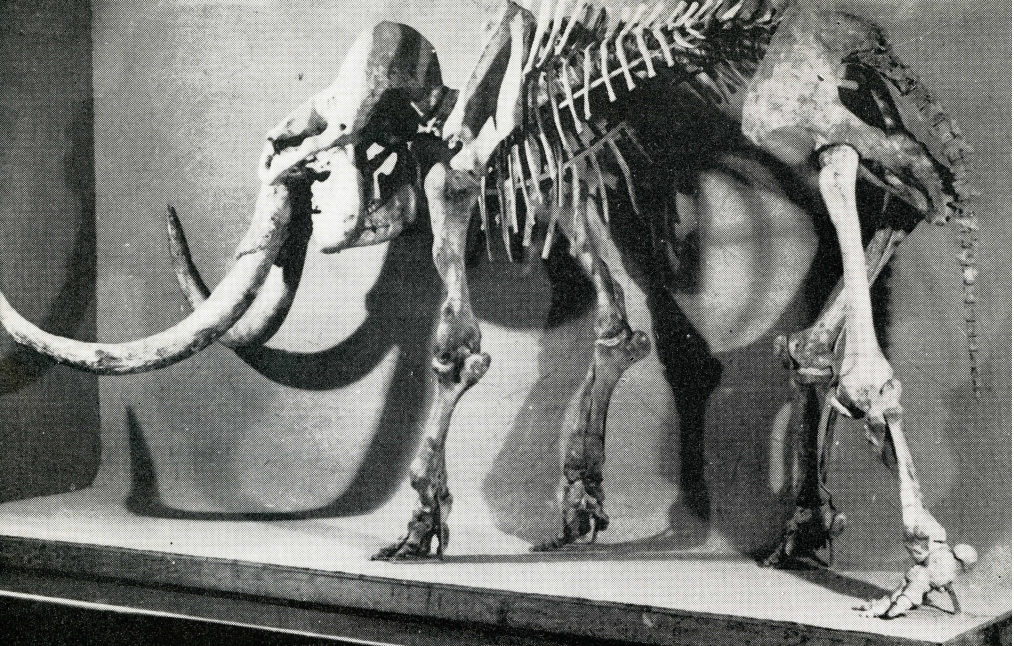
do this, and, in the instance of our mounted skeleton, the skull and tusks are somewhat too large, giving the impression of big-headedness, which is not quite true. However, in thirteen years of excavation the other skulls we have recovered are too small.

One of the first questions people ask is: "How old is it?" This is a little like asking a teenager what model car he has when his car is made up of scraps from the junk heap. Due to the discovery of a method of dating using the decay of the isotope Carbon 14 by Dr. Willard Libby, and the application of this method by Dr. Wallace Broecker of Lamont Geological Observatory of Columbia University, it was possible to date various parts of the composite skeleton by radiocarbon. The front legs came from an animal which died about 12,500 years ago. The skull came from one which died nearly 15,800 years ago, and the hip bones and lower hind leg from one who died 29,750 years ago. Thus, like asking the age of an old maid aunt, who primly replies, "Over 21," it may be best to assume that our dwarf mammoth is "over 12,500 years."

While we cannot give an exact age for our dwarf mammoth, as far as we know it is the first mounted mammoth skeleton in any museum in the world on which *any* radiocarbon age is given.

Another common question is: "Why is this skeleton composed of so many individuals and of such a time span?"

It is our belief that these skeletal parts, which are found concentrated in a very limited area on Santa Rosa Island, were left by ancient human hunters as a result of their slaughter and cooking for food. The meat was stripped off the large bones, while the small bones, such as ribs and vertebrae, were cooked on the spot or carried to their campsites.



*Photo by J.C.T.*

Therefore we never find the complete skeleton of any one animal. In addition, these campsites were probably located some six to nine miles seaward from the present coastline, owing to the fact that the ocean, due to the storage of water in the form of glacial ice, was as much as 400 feet lower than at present.

When did the mammoths reach Santa Rosa Island? Why are they dwarfed? And when did the first man reach the islands? These are all questions which the Santa Rosa Island Expeditions of the Museum are attempting to answer.

As this article goes to press, the 13th Santa Rosa Island Expedition, sponsored in part by the Adventurers Club of Chicago, will be in operation, in search of new data on the prehistory of the Channel Islands.

*P.C.O.*